UDC 621.884.091.6 May 1993

Countersunk head rivets
with nominal diameters from 1 to 8 mm

DIN 661

Senkniete; Nenndurchmesser 1 bis 8 mm

Supersedes July 1977 edition.

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

Dimensions in mm

1 Scope and field of application

This standard specifies dimensions of steel and nonferrous metal countersunk head rivets with nominal diameters from 1 to 8 mm.

2 Dimensions

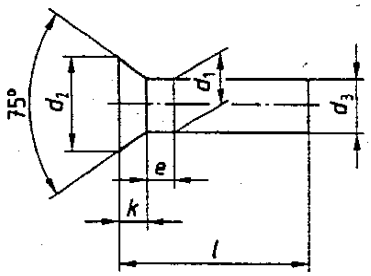


Table 1: Dimensions and mass

d_1 Nominal size	1	1,2	(1,4)	1,6	2	2,5	3	(3,5)	4	5	6	(7)	8
d_1 Limit deviations	± 0,05				± 0,1					± 0,15			
d_2 Nominal size	1,8	2,1	2,5	2,8	3,5	4,4	5,2	6,3	7	8,8	10,5	12,2	14
d_2 Tolerance	h14							h15					
d_3 min.	0,93	1,13	1,33	1,52	1,87	2,37	2,87	3,37	3,87	4,82	5,82	6,82	7,76
e max.	0,5	0,6	0,7	0,8	1	1,25	1,5	1,75	2	2,5	3	3,5	4
k ≈	0,5	0,6	0,7	0,8	1	1,2	1,4	1,8	2	2,5	3	3,5	4
l Nominal size / Limit deviations	Approximate mass (7,85 kg/dm³), per 1000 units, in kg[1])												
2	0,016	0,027	0,032	0,046									
3	0,023	0,035	0,045	0,062	0,102								
4	0,029	0,044	0,058	0,078	0,127	0,163							
5	0,035	0,053	0,070	0,094	0,152	0,201	0,363	0,518					
6		0,062	0,083	0,110	0,177	0,240	0,421	0,596	0,803				

l Nominal size: 2, 3, 4, 5, 6 — Limit deviations: $^{+0,25}_{0}$ (2, 3), $^{+0,30}_{0}$ (4, 5, 6)

For [1]), see page 2.

(continued)

Continued on pages 2 to 5

Table 1 (concluded)

d_1 Nominal size	1	1,2	(1,4)	1,6	2	2,5	3	(3,5)	4	5	6	(7)	8
d_1 Limit deviations	± 0,05				± 0,1					± 0,15			
d_2 Nominal size	1,8	2,1	2,5	2,8	3,5	4,4	5,2	6,3	7	8,8	10,5	12,2	14
d_2 Tolerance	h14							h15					
d_3 min.	0,93	1,13	1,33	1,52	1,87	2,37	2,87	3,37	3,87	4,82	5,82	6,82	7,76
e max.	0,5	0,6	0,7	0,8	1	1,25	1,5	1,75	2	2,5	3	3,5	4
k ≈	0,5	0,6	0,7	0,8	1	1,2	1,4	1,8	2	2,5	3	3,5	4
l Nominal size	Limit deviations	Approximate mass (7,85 kg/dm³), per 1000 units, in kg[1])											
8	+ 0,36 0			0,109	0,142	0,228	0,316	0,537	0,753	1,01	1,62			
10						0,277	0,392	0,650	0,906	1,21	1,94	2,90	4,17	
12	+ 0,43 0						0,468	0,763	1,06	1,41	2,25	3,32	4,79	6,30
14								0,876	1,22	1,62	2,56	3,82	5,41	7,12
16								0,989	1,38	1,82	2,88	4,28	6,03	7,94
18									1,54	2,03	3,20	4,74	6,65	8,77
20	+ 0,52 0									2,25	3,52	5,20	7,28	9,60
22											3,83	5,66	7,91	10,4
25											4,30	6,35	8,84	11,6
28												7,03	9,77	12,9
30												7,49	10,4	13,7
32	+ 0,62 0												11,0	14,4
35													11,9	15,7
38														17,0
40														17,8

Lengths above 40 mm shall be graded in 5 mm steps.
Use of sizes given in brackets and of intermediate lengths should be avoided where possible.
Rivets are normally manufactured in the sizes for which values of mass have been specified.
The values of mass specified are for guidance only.

[1]) Conversion factors for values of mass

Material	St	Cu	Cu-Zn	Al
Conversion factor	1	1,134	1,070	0,344

3 Technical delivery conditions

Table 2: Technical delivery conditions

		Steel	Nonferrous metal			Stainless steel
Material[1])		St = QSt 32-3 or QSt 36-3, at the manufacturer's discretion.	CuZn = CuZn37	Cu = SF-Cu	Al = Al 99,5	A2, A4
	Minimum tensile strength, R_m, in N/mm²	290	290	200	100	500
	As specified in	DIN 1654 Part 2	DIN 17677 Part 1	DIN 17677 Part 1	DIN 1790 Part 1	ISO 3506
Dimensional and geometrical tolerances		As specified in DIN 101.				
Surface finish		Standard finish: bright. Where a protective coating is required (e.g. an electroplated coating complying with ISO 4042), this shall be agreed when ordering. The tolerances and limit deviations specified in table 1 shall also apply after coating.				
Testing of mechanical properties		As specified in DIN 101.				
Acceptance inspection		As specified in DIN 101.				
[1]) Use of other materials shall be the subject of agreement.						

4 Designation

Designation of a steel (St) countersunk head rivet with a nominal diameter, d_1, of 4 mm and a length, l, of 20 mm:

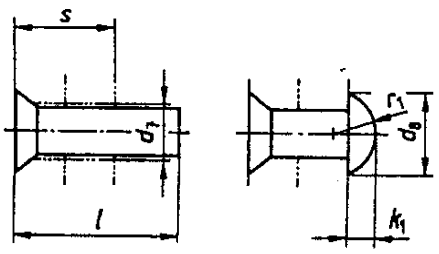
Rivet DIN 661 – 4 × 20 – St

The DIN 4000-9-3 tabular layout of article characteristics shall apply to rivets as covered in this standard.

5 Examples of application

Table 3 specifies hole diameters and gives guide values for upset head dimensions and maximum grip lengths of both round head (A) and countersunk head (B) rivets.

Type A, upset head rounded



Type B, upset head countersunk

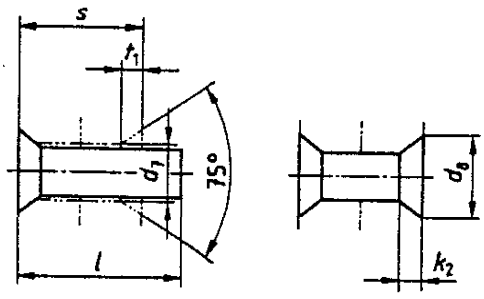


Table 3: Hole diameters and guide values for upset head dimensions and grip lengths

d_1		1	1,2	(1,4)	1,6	2	2,5	3	(3,5)	4	5	6	(7)	8
d_7 H12		1,05	1,25	1,45	1,65	2,1	2,6	3,1	3,6	4,2	5,2	6,3	7,3	8,4
Round head (A)	d_8	1,8	2,1	2,4	2,8	3,5	4,4	5,2	6,2	7	8,8	10,5	12,2	14
	k_1	0,6	0,7	0,8	1	1,2	1,5	1,8	2,1	2,4	3	3,6	4,2	4,8
	r_1 ≈	1	1,2	1,4	1,6	1,9	2,4	2,8	3,4	3,8	4,6	5,7	6,6	7,5
Countersunk head (B)	d_8	1,8	2,1	2,4	2,8	3,5	4,4	5,2	6,2	7	8,8	10,5	12,2	14
	k_2 ≈	0,4	0,5	0,6	0,7	0,8	1	1,3	1,4	1,9	2,4	2,8	3,3	3,9
	t_1	0,4	0,5	0,6	0,7	0,8	1	1,3	1,4	1,8	2,3	2,7	3,2	3,7

l	Maximum grip length, s_{max}																									
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
2	0,5	1	–	1	–	1	–	0,5																		
3	1,5	2	1	2	1	2	0,5	1,5	–	1,5																
4	2	2,5	2	3	2	3	1,5	2,5	1	2,5	0,5	2,5														
5	3	3,5	3	3,5	3	3,5	2,5	3,5	2	3,5	1,5	3,5	1,5	3,5	0,5	3										
6			3,5	4,5	3,5	4,5	3	4,5	3	4	2,5	4	2	4	1,5	4	1	3,5								
8					5	6	5	6	4,5	6	4	6	4	6	3,5	6	3	5,5	2	5						
10									6	7,5	6	7,5	6	7,5	5,5	7,5	5	7	4	7	3	6,5	2	6		
12											7,5	9,5	7,5	9,5	7	9,5	6,5	9	6	9	5	8,5	4	8	3	7,5
14													9,5	11	8,5	11	8	10,5	7,5	10	6,5	10	6	9,5	5	9
16													11	12,5	10	12,5	9,5	12	9	11,5	8	11,5	7,5	11,5	6,5	10,5
18															12	14	11	14	11	13	10	13	9,5	13	8,5	12
20																	13	15	13	15	12	15	11	15	10	14
22																			14	17	13	17	13	17	12	16
25																			17	20	16	20	15	19	14	18
28																					18	22	18	22	17	21
30																					20	24	20	24	18	23
32																							21	25	20	24
35																							24	28	23	27
38																									25	30
40																									27	31

Since the grip lengths specified are for guidance only, trial riveting is recommended, especially if automated procedures are used.

Standards referred to

DIN 101	Rivets; technical delivery conditions
DIN 1654 Part 2	Cold heading and cold extruding steel; technical delivery conditions for killed unalloyed steel not intended for heat treatment
DIN 1790 Part 1	Wrought aluminium and aluminium alloy wire; properties
DIN 4000 Part 9	Tabular layout of article characteristics for bolts, pins, rivets, split pins and keys
DIN 17 677 Part 1	Wrought copper and copper alloy wire; properties
ISO 3506 : 1979	Corrosion-resistant stainless steel fasteners; specifications
ISO 4042 : 1989	Threaded components; electroplated coatings

Previous editions

DIN 661: 10.26, 03.44, 06.56x, 07.77.

Amendments

The following amendments have been made to the July 1977 edition.

a) Clauses 2 to 7 have been replaced by clause 3 'Technical delivery conditions'.

b) The specifications for materials have been amended.

c) The value specified for the minimum tensile strength, R_m, has been amended.

d) The range of materials specified has been extended to include stainless steel.

e) It is now permitted to use the symbol Cu as a substitute for SF-Cu.

f) Appendix A is no longer included.

g) The standard has been editorially revised.

International Patent Classification

F 16 B 019/04